

## ***Bridgeton Landfill LLC***

January 15, 2015

Mr. Chris Nagel  
Missouri Department of Natural Resources  
Solid Waste Management Program  
1738 East Elm Street  
Jefferson City, Missouri 65101

Re: Response to December 26, 2014 Letter  
Bridgeton Landfill, Bridgeton, Missouri  
Permit No. 0118912  
Work Plan for Relocated TMPs 24 and 26

Dear Mr. Nagel:

This letter is being submitted pursuant to the Missouri Department of Natural Resources (MDNR) December 26, 2014, letter and the January 9, 2015 Order (21<sup>st</sup> Judicial Circuit Court- 13SL-CC01088). Bridgeton Landfill (BL) hereby submits the plans to move the proposed locations of Temperature Monitoring Probes (TMP) 24 and 26 to the locations consistent with the December 26, 2014 MDNR letter.

The measuring devices proposed are type T thermocouples of the type successfully used under similar circumstances for this purpose. Thermocouples were found to have longer in ground lifetimes than thermistors. The thermocouples will consist of 20 gauge type T wire with Teflon coating. The junctions will be pre formed by the supplier and wires cut to length prior to delivery. Wires will be inserted into an abrasion resistant sheath with each junction at the prescribed depth prior to installing sheath in a bore hole. Each wire will be labeled with a crimped on numbered band to identify it. Upon completion of the installation, the leads will be attached to a readout terminal box with each lead numbered the same as the crimped on band. Details for the terminal box and conduit seals are provided in the attached drawings.

Based on the approved protocol for the TMP installation depths (previously submitted in January 2013 for the North Quarry TMP installation), the bottom of the additional TMPs has been based on the following:

- For total waste thickness of 80 feet or less, to the quarry floor;
- For total waste thickness of greater than 80 ft but less than 120 feet, to within 20 feet of the quarry floor;
- For total waste thickness depths greater than 120 ft, to within 40 feet above the quarry floor but not exceeding 180 feet in depth.

No less than 3 thermocouples will be installed in any TMP and thermocouple spacing will not exceed 20 feet in the vertical direction. The closest unit to the surface will typically be 20 feet below grade but not less than 15 feet. In the event the less than 20 foot distance is used the CPVC conduit will be shortened accordingly. A preliminary depth of installation

Mr. Chris Nagel

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table is included on the attached drawings. The proposed units will have approximately 12 thermocouples in total.

The strings of thermocouples encased in the abrasive sheath will be inserted inside drill rods that are advanced to the target depths. The drill rods will be advanced using roto-sonic drilling techniques without extraction of cores. Borings will be advanced to the target depth of the bottom of the proposed unit. The sonic rig will use a 4 inch casing with a "lost tip" tack welded to the bottom of the casing. This casing will be installed by displacing the waste without any waste being collected. Once the casing is set at the desired depth, the casing is raised a few feet, and a rod is dropped in the casing to break off the lost tip. Then the TMP string will be installed, while the casing is still in place. A steel, fiberglass or other rigid rod will be used to stand the assembly in the hole while the entire assembly will be grouted in place with a high solids cement bentonite grout with flyash. Then the 4 inch casing will be removed while keeping the grout in place. The TMP assembly will then be finalized at the surface. This method has been previously approved by the MDNR.

All contractors which will be involved with the drilling will be responsible to follow their own health and safety plans, which at a minimum, will incorporate the Bridgeton Landfill's health and safety plan. Also, all contractors will be required to comply with the Bridgeton Landfill Odor Management Plan.

The drilling portion of the installation TMP 24 and TMP 26 in the North Quarry can commence as early as the week of January 19, 2015, if MDNR can expedite approval. The aggressive schedule of material procurement, scheduling of contractors, drilling access construction and other tasks have allowed for the scheduled commencement of drilling on the aforementioned date (weather and unforeseeable circumstances excluded).

If you need additional information, please contact me at (314) 744-8165.

Sincerely,



Brian J. Power  
Environmental Manager  
Bridgeton Landfill, LLC.

Attachments

Permit Drawings for Temperature Monitoring Probes 24 and 26

PERMIT DRAWINGS FOR

**TEMPERATURE  
MONITORING PROBES  
24 AND 26**

**BRIDGETON LANDFILL  
BRIDGETON, ST. LOUIS COUNTY, MISSOURI**

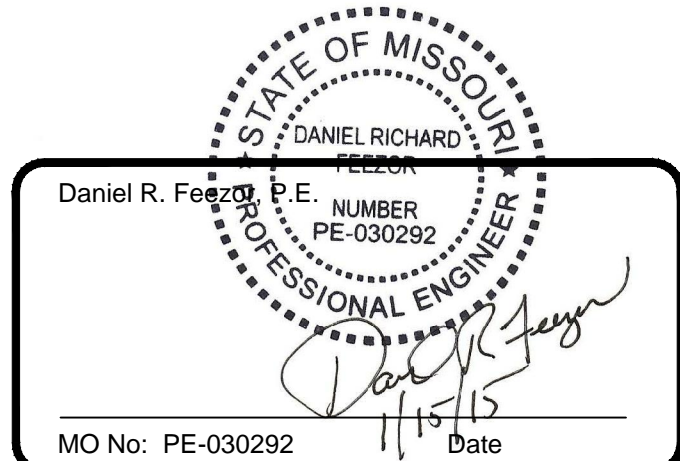
**JANUARY 2015**

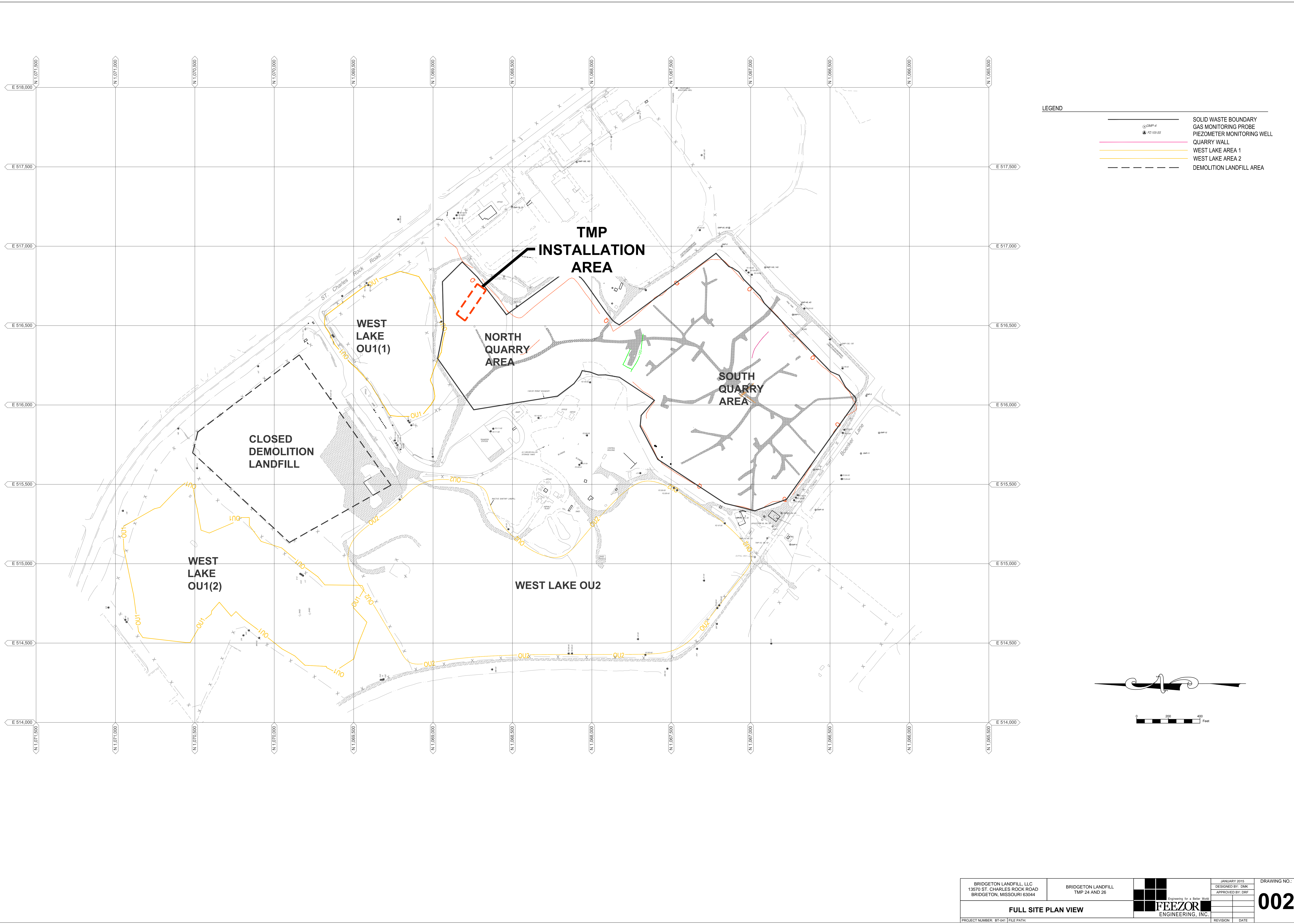
**PREPARED FOR:  
BRIDGETON LANDFILL, LLC.**

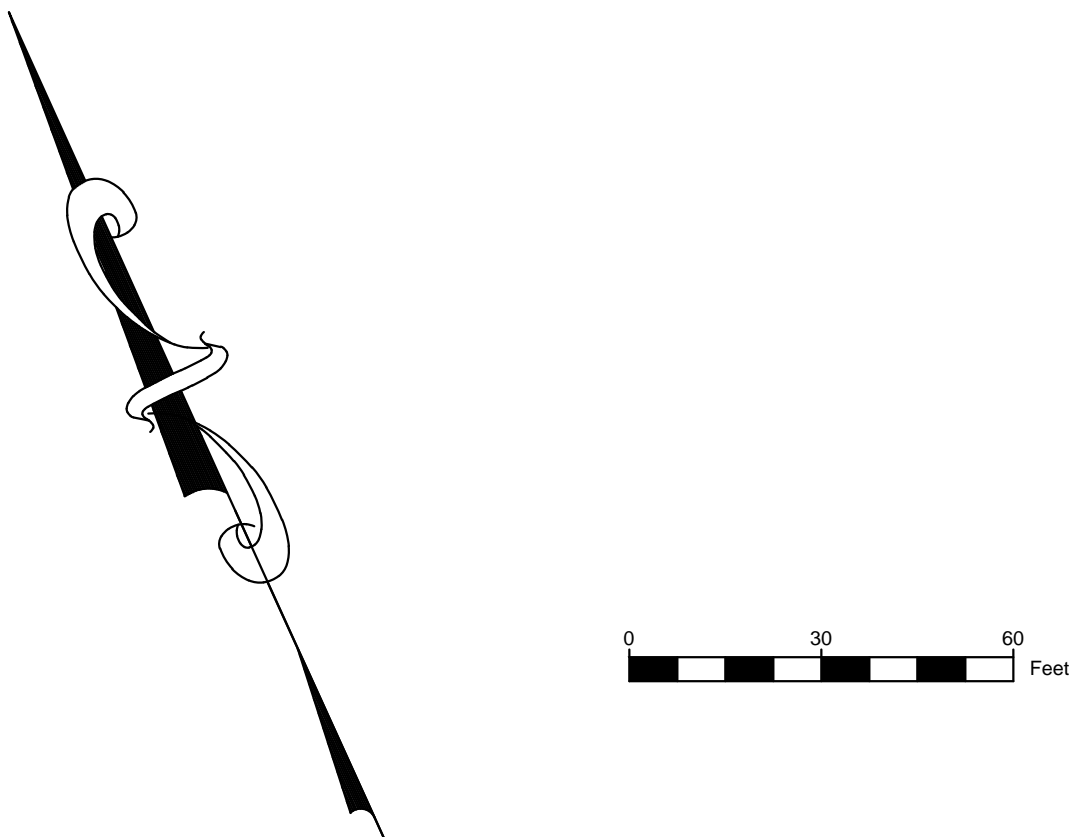


3405 HOLLENBERG DRIVE  
BRIDGETON, MO 63044  
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003	PLAN VIEW (TMP 24 AND 26)
004	DETAILS



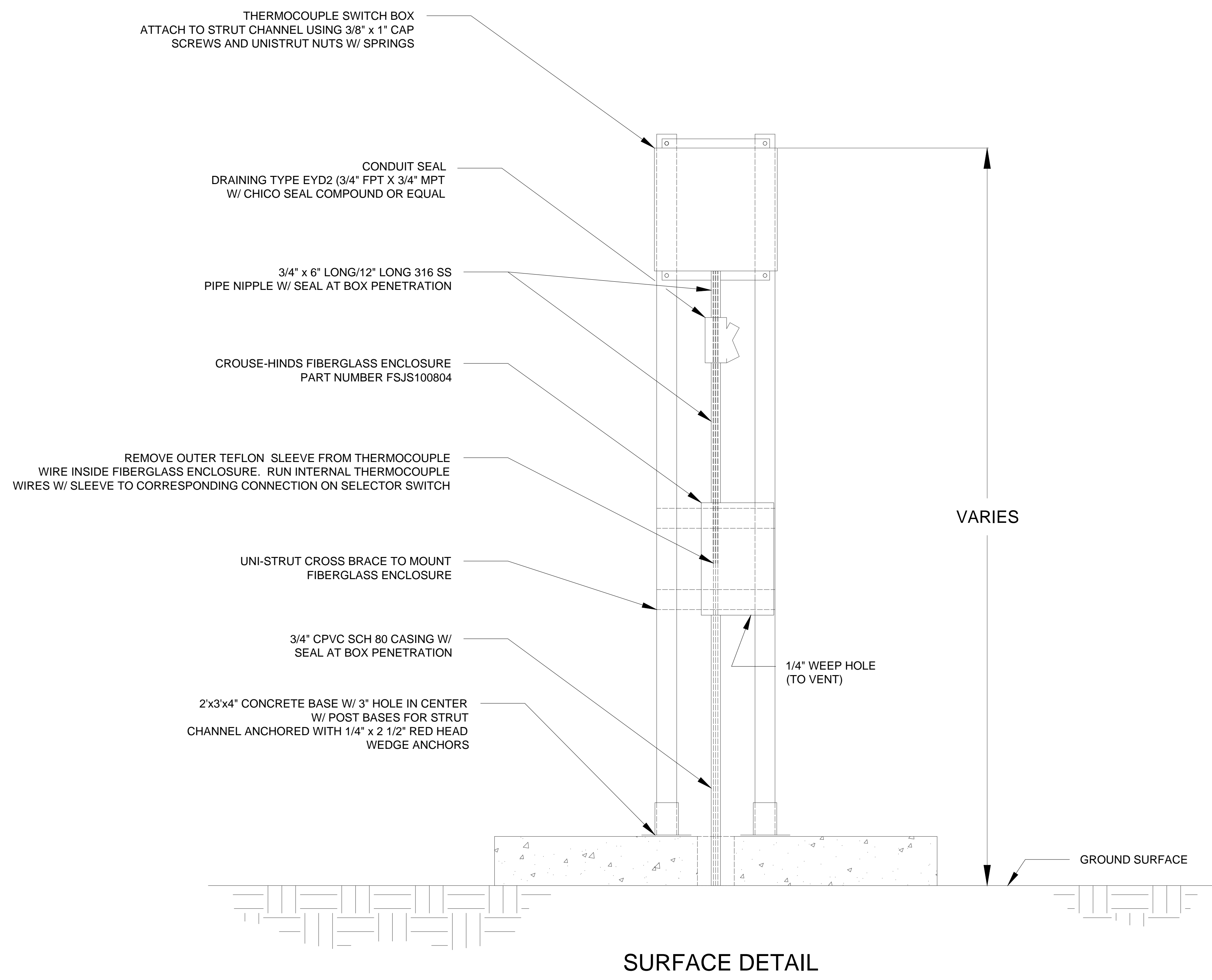
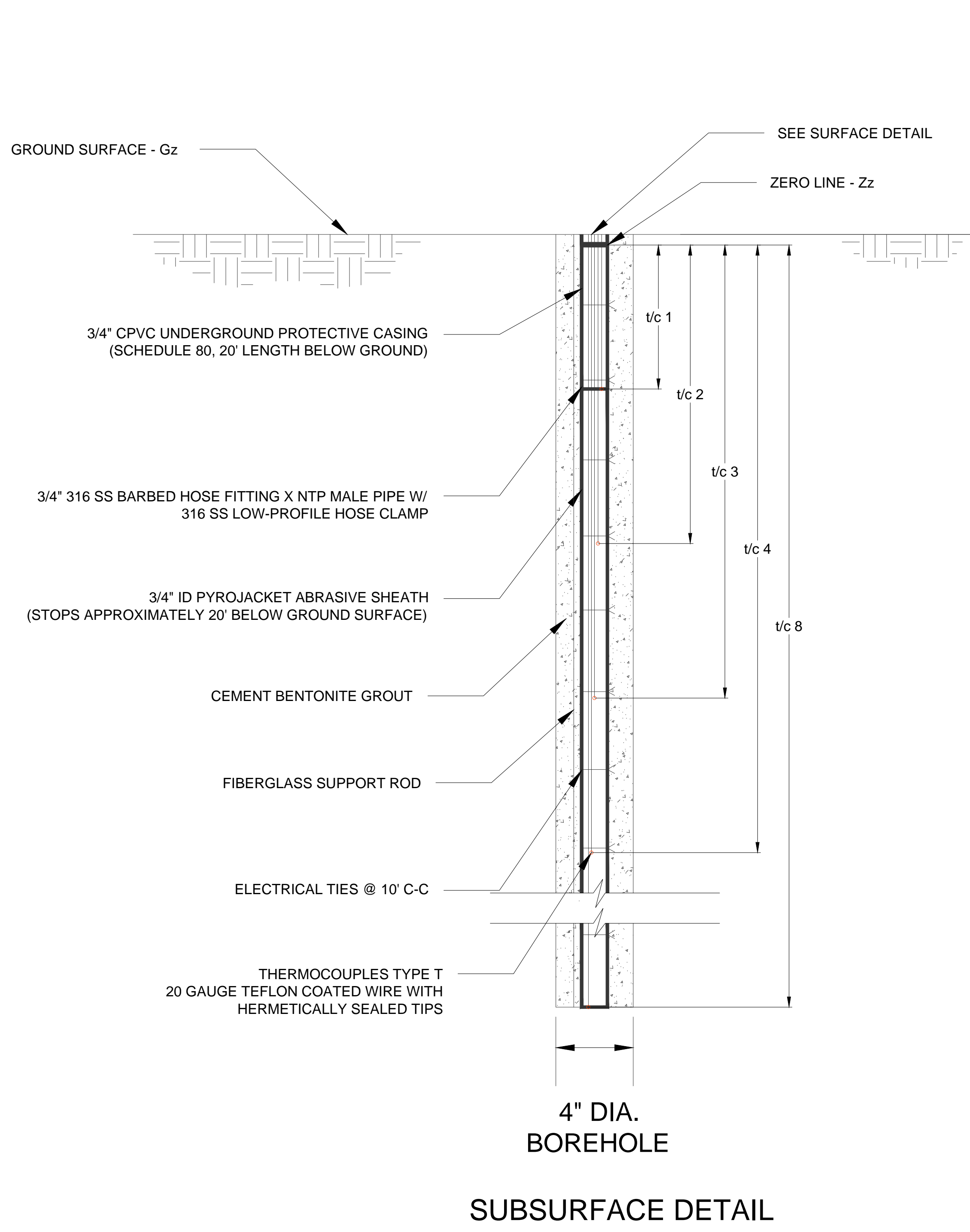




LEGEND

● TMP-24      TEMPERATURE MONITORING PROBE (PROPOSED)

PT#	Northing	Easting	Description	Bottom of Quarry based on 1979 Aquaterra Drawing	2014 Elev	Waste Depth based upon 1979 Aquaterra Drawing	Depth of Drilling
TMP-24	1,068,808.26	516,574.20	Proposed TMP	423.86	511.08	87.22	67.22
TMP-26	1,068,712.35	516,712.82	Proposed TMP	313.58	495.99	182.41	142.41



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TEMPERATURE MONITORING PROBE (TMP)

NTS

- NOTES:
- SWITCH BOX IS SAGINAW CONTROL & ENGINEERING ENCLOSURE 1210ELJ - PANEL IS SCE-12P10J WITH JIC SWING OUT PANEL KIT - MOUNTED WITH HINGE ON RIGHT.
  - HOLE FOR ROTARY SWITCH TO ACCOMODATE SW142G-12-B
  - ALL PERFORATIONS AND CLAMPS NEMA 4 RATED

Probe ID	t/c 1 (depth)	t/c 2 (depth)	t/c 3 (depth)	t/c 4 (depth)	t/c 5 (depth)	t/c 6 (depth)	t/c 7 (depth)	t/c 8 (depth)
TMP-24	20'	40'	60'	67'	-	-	-	-
TMP-26	20'	40'	60'	80'	100'	120'	140'	142'